AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A cooperative work service management apparatus comprising a negotiator module for determining cooperative work service roles of devices connected to a network, through a predetermined election algorithm, so that a cooperative work service can be performed among the devices by using descriptions collected from the devices, and controlling operations of the devices according to the determined cooperative work service roles to process a control command transmitted from a control device connected to the network,

wherein the cooperative work service comprises at least one function that is performed by at least two of the devices each of which is configured to individually perform the at least one function.

2. (previously presented): A cooperative work service management apparatus, comprising:

a coordinator module for one of directly performing a control command transmitted from a control device present in a network having devices connected thereto and transmitting the control command to other devices so as to control operations of the other devices performing at least one same function where the at least one same function is required for a cooperative work

service, according to descriptions collected from the devices connected to the network and cooperative work service roles determined through a predetermined algorithm.

3. (previously presented): A cooperative work service management apparatus, comprising:

a supporter module for receiving a control command of a control device, transmitted from a coordinator module present in a network to provide a service corresponding to the control command, according to descriptions collected from devices connected to the network and cooperative work service roles determined through a predetermined algorithm,

wherein the devices perform at least one same function where the at least one same function is required for the service and wherein the predetermined algorithm allocates the service with the at least one same function amongst the devices to perform the at least one same function.

4. (original): A cooperative work service management apparatus, comprising:

a negotiator module for determining cooperative work service roles of devices connected to a network through a predetermined election algorithm so that a cooperative work service can be performed among the devices by using descriptions collected from the devices; and

a coordinator module for one of directly performing a control command transmitted from a control device present in the network and transmitting the control command to other devices, so as to control the operations of the devices.

5. (original): The cooperative work service management apparatus as claimed in claim 4, further comprising a supporter module for receiving the control command transmitted from the coordinator module to provide a service corresponding to the control command.

6. (original): The cooperative work service management apparatus as claimed in claim 4, wherein if the cooperative work service roles are determined through the election algorithm, the negotiator module sets the determined cooperative work service roles into a description of a relevant device so that the cooperative work service can be performed among the devices.

7. (original): The cooperative work service management apparatus as claimed in claim 4, wherein the election algorithm is written in a predetermined programming language, which serves to coordinate the cooperative work service roles of the devices so that consistency in the same services can be maintained according to a function of service to be provided through the cooperative work service by using the descriptions provided from the devices present in the network.

8. (currently amended): A home network apparatus for cooperative work service, wherein the home network apparatus is connected to a cooperative work service management apparatus which comprises a negotiator module for determining cooperative work service roles of devices connected to a network through a predetermined election algorithm so that a cooperative work service can be performed among the devices by using descriptions collected from the devices, and a coordinator module for one of directly performing a control command

transmitted from a control device present in the network and transmitting the control command to other devices, so as to control the operations of the devices,

wherein the cooperative work service comprises at least one function that is performed by at least two of the devices each of which is configured to individually perform the at least one function.

9. (original): The home network apparatus as claimed in claim 8, further comprising a supporter module for receiving the control command transmitted from the coordinator module in order to provide a service corresponding to the received control command.

10. (original): The home network apparatus as claimed in claim 8, wherein if the cooperative work service roles are determined through the election algorithm, the negotiator module sets the determined cooperative work service roles into a device description of a relevant device so that the cooperative work service can be performed among the devices.

11. (original): The home network apparatus as claimed in claim 8, wherein the election algorithm is written in a predetermined programming language, which serves to coordinate the cooperative work service roles of the devices so that consistency in same services can be maintained according to a function of a service to be provided through the cooperative work service by using the descriptions provided from the devices present in the network.

12. (original): A home network system for cooperative work service, comprising:

a plurality of devices connected to a network;

a negotiator module connected to the plurality of devices, for determining cooperative work service roles of the plurality of devices by applying device descriptions collected from the plurality of devices to a predetermined election algorithm so that the cooperative work service can be performed in consideration of a function of a corresponding device; and

a coordinator module for directly performing a control command transmitted from a control device according to the cooperative work service roles determined by the negotiator module.

13. (original): The home network system as claimed in claim 12, further comprising a supporter module for performing the operations of the plurality of devices according to the cooperative work service roles determined by the negotiator module,

wherein the coordinator module transmits a control command to the supporter module and causes the supporter module to process the control command.

14. (original): The home network system as claimed in claim 12, further comprising a supporter module, wherein the supporter module is provided in a device, to which the supporter module belongs, among the plurality of devices connected to the network.

15. (original): The home network system as claimed in claim 12, further comprising a supporter module, wherein the supporter module is provided in a device, to which the supporter module does not belong, among the plurality of devices connected to the network.

16. (original): The home network system as claimed in claim 12, wherein if the cooperative work service roles are determined through the election algorithm, the negotiator module sets the determined cooperative work service roles into the description of a relevant device so that the cooperative work service can be performed among the plurality of devices.

17. (original): The home network system as claimed in claim 12, wherein the election algorithm is written in a predetermined programming language, which serves to coordinate the cooperative work service roles of the plurality of devices so that consistency in same services can be maintained according to a function of a service to be provided through the cooperative work service by using the descriptions provided from the plurality of devices present in the network.

18. (original): A recordable storage medium, comprising:

a negotiator module for determining cooperative work service roles of devices connected to a network through a predetermined election algorithm so that a cooperative work service among the devices can be performed by using descriptions collected from the devices;

a supporter module for performing operations of the devices according to the cooperative work service roles determined by the negotiator module; and

a coordinator module for one of directly performing a control command transmitted from a control device and transmitting the control command to the supporter module to process the control command.

19. (original): The recordable storage medium as claimed in claim 18, wherein if the cooperative work service roles are determined through the election algorithm, the negotiator module sets the determined cooperative work service roles into a description of a relevant device so that the cooperative work service can be performed among the devices.

20. (original): The recordable storage medium as claimed in claim 18, wherein the election algorithm is written in a predetermined programming language, which serves to coordinate the cooperative work service roles of the devices so that consistency in same services can be maintained according to a function of a service to be provided through the cooperative work service by using the descriptions provided from the devices present in the network.

21. (original): A cooperative work service method, comprising:

causing a cooperative work service to inform other cooperative work services connected to a network of a presence of said cooperative work service and to exchange service descriptions with cooperative work services having the same service functions;

determining a role of the cooperative work service by using the provided service descriptions and a predetermined election algorithm; and

selectively executing one of a coordinator module and a supporter module according to the determined role.

22. (original): The cooperative work service method as claimed in claim 21, further comprising:

causing the coordinator module to request the supporter module connected to the network for a service according to a control command sent by a control device and to receive a response from the supporter module; and

causing the supporter module to inform the coordinator module connected to the network of an event message generated according to the control command and to receive a response from the coordinator module.

23. (original): The cooperative work service method as claimed in claim 21, wherein the election algorithm is written in a predetermined programming language, which serves to coordinate cooperative work service roles of devices so that consistency in the same services can be maintained according to a function of a service to be provided through the cooperative work service by using device descriptions provided from the devices present in the network.

24. (original): The cooperative work service method as claimed in claim 23, wherein a process of coordinating the cooperative work service roles of the devices comprises:

determining, through a discovery-advertisement process for informing other devices present in the network of the presence of each device, whether other cooperative work services exist;

determining a cooperative work service role of each device as a coordinator if it is determined that there are no said other cooperative work services; and

collecting the service descriptions from the same cooperative work services and determining whether the cooperative work service role of said each device was a coordinator if it is determined that there are said other cooperative work services, and then, establishing the

cooperative work service role as the coordinator if the cooperative work service role was a coordinator, and establishing the cooperative work service role as a supporter if the cooperative work service role was not a coordinator.

25. (original): The cooperative work service method as claimed in claim 23, wherein the determined cooperative work service role is a coordinator for one of directly receiving and performing a control command transmitted from a control device present in the network, and transmitting a control command to other devices, to control the operations of the devices.

26. (original): The cooperative work service method as claimed in claim 23, wherein the determined cooperative work service role is a supporter for one of processing a control command transmitted from a device which performs the coordinator role and resides on the network and providing services corresponding to the control command.

27. (original): A cooperative work service management apparatus, comprising:

a negotiator module for determining whether a service providing unit, which performs a specific service within a device, to which the negotiator module belongs, according to a control command transmitted from a control device, should be activated, so that a cooperative work service among devices can be performed by using descriptions collected from the devices connected to a network.

28. (previously presented): A home network apparatus, comprising:

a service providing unit connected to a network for providing a predetermined service; and

a negotiator module for determining whether the service providing unit within a device to which the negotiator module belongs should be activated, so that a cooperative work service among devices, performing at least one same function where the at least one same function is required for the cooperative work service, can be performed through device descriptions collected from the devices connected to the network.

29. (previously presented): A home network system, comprising:

a plurality of devices connected to a network;

a service providing unit connected to each of the plurality of devices, for providing a predetermined service; and

a negotiator module for determining whether the service providing unit within a device to which the negotiator module belongs should be activated, so that a cooperative work service among the plurality of devices, performing at least one same function where the at least one same function is required for the cooperative work service, can be performed through device descriptions collected from the plurality of devices connected to the network.

30. (original): A cooperative work service method, comprising:

causing a cooperative work service to inform other cooperative work services connected to a network of a presence of said cooperative work service and to exchange service descriptions with at least one of the other cooperative work services having the same service functions;

determining a role of the cooperative work service by using the provided service descriptions and a predetermined election algorithm; and one of executing and terminating a relevant service according to the determined role.

31. (previously presented): The cooperative work service management apparatus as claimed in claim 1, wherein the negotiator module allocates the cooperative work service to the devices that perform at least one same function required for the cooperative work service.

32. (previously presented): The cooperative work service management apparatus as claimed in claim 6, wherein the negotiator modules sets the determined cooperative work service roles by activating one of the coordinator module or a support module which receives the control command transmitted from the coordinator module to provide a service corresponding to the control command and deactivating the other module.

33. (previously presented): The home network system as claimed in claim 12, wherein the negotiator module is dedicated to determining cooperative work services roles and is in a separate apparatus from the plurality of devices.

34. (previously presented): The recordable storage medium as claimed in claim 18, wherein if the supporter module is activated in a device, the coordinator module is deactivated in the device and vise versa.

35. (previously presented): The cooperative work service method as claimed in claim 24, wherein if the coordinator is a device which performs same service as another device exists, the another device is a supporter which executes one of processing a control command transmitted from the coordinator device and resides on the network providing services corresponding to the control command provided by the coordinator device.

36. (previously presented): The cooperative work service management apparatus as claimed in claim 1, wherein the negotiator module coordinates among the devices that provide same services using middleware service definitions for a home network.